DOCUMENT RESUME

ED 442 786 SP 039 317

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TITLE How Students Manage the Didactic Contract? Contribution of the Didactic Perspective to Research in Physical Education Classroom.
PUB DATE 2000-04-00
NOTE 7p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Didacticism; Middle School Students; Middle Schools; *Physical Education
IDENTIFIERS *Didactic Teaching; Ecological Perspective; Following Directions; *Task Engagement

ABSTRACT

This study investigated how and why students modified instructional tasks, explaining modifications using the concept of didactic contract. The study focused on two theoretical perspectives in physical education (PE) research: didactic and ecological. The didactic paradigm examines relationships among teachers, students, and the content embedded in tasks during academic work. Didactic contract refers to the part of the negotiation process related to academic work. The ecological approach states that the ecology of PE focuses on cooperation rather than academic work. Teachers maintain cooperation by reducing demands in the instructional system. This study investigated how students' relationship to the content taught determined the modification of the task, influenced their work, and affected academic achievement. Data were collected during a middle school volleyball unit via field notes, teacher interviews, and videotaped lessons. Usually, students modified the stated task. Continual, inevitable changes in the content taught were observed when it was brought into play in the instructional system. This is congruent with the ecological perspective. Students stretched the didactic contract to test their capabilities in successfully completing the task. This caused a breach in the didactic contract. Such breaches were due to the teaching-learning process itself rather than poor accountability. (Contains 13 references.) (SM)

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HOW STUDENTS MANAGE THE DIDACTIC CONTRACT?

CONTRIBUTION OF THE DIDACTIC PERSPECTIVE TO RESEARCH IN PHYSICAL EDUCATION CLASSROOM

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Purpose

The purposes of this presentation are:

1. To outline how and why students modify instructional tasks.

2. To explain those facts through the concept of "didactic contract" (Brousseau, 1986, Amade-Escot, 1999).

3. To contribute to the debate between two theoretical perspectives in PE classroom research: "the didactic perspective" (Amade-Escot, 1996; Loquet, Refuggi & Amade-Escot, 1999) and "the ecological perspective"(Hastie, 1996; Hastie & Siedentop, 1999).

Theoretical framework

The didactic paradigm examines the relationships between teachers, students and the content embedded in the tasks during academic work. This research perspective stresses that students and teacher have a specific relation to the content taught which determines the evolution of the academic work during classroom interactions. Many researchers have stated that physical education is achieved through a rather subtle and tacit process of negotiations. The concept of "didactic contract" (Brousseau, 1986, 1997) is used to specify the part of the negotiations which are related to the academic work. These negotiations, more often than not implicit between teacher and students, concern the content to be taught and learned in a given task and cannot be considered as the same as other negotiations related with class management, or the social relationships. At first glance, the didactic approach appears to have some similarity with the ecological perspective: (a) researchers are concerned with the implementation of academic goals and content in the PE classroom; (b) they study the continual, inevitable changes observed during the teaching-learning process in classroom life. The main results in the ecological

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perspective state that the ecology of physical education focuses on cooperation rather than on academic work. Teachers maintain cooperation by reducing the demands in the instructional system (for a review: Hastie & Siedentop, 1999). These findings have been confirmed by many studies but a question remains. Why do students who participate consistently in the academic work modify the stated task?

The didactic perspective focuses exactly on this question by studying the negotiation and trading-off in the instructional system itself. There is some evidence that the tasks are continuously modified during the academic work (i.e. in the instructional system), while students' involvement in the managerial system or the student social system is congruent with the demands of the task. Why? Students' response depends on the way they understand or are related to the content taught, which is embedded in the stated task. In other words, the didactic perspective confirms that "there is accountability intrinsic to the manner in which the activities develop and the goals are to be achieved" (Hastie & Siedentop, 1999, 16), but stresses that this "content-embedded accountability" is fragile even when the managerial and the student social systems are not critical.

The purpose of this paper is to point out how students' relationship to the content taught: (a) determines the modification of the task, (b) has an influence on the work students do, and (c) has some consequences on their academic achievement. Along the way, we will try to be more specific about the concept of "didactic contract" and state in which cases this concept can be helpful to the understanding of classroom interactions. By the way the concept of "didactic contract" will be set out into the theoretical frame of the didactic paradigm which stresses that didactics' interaction are situated action and develops a constructvist approach to physical education.

Methods and data sources

The study followed guidelines for qualitative research using standard non-participant observation methods. The author made field observations of a volleyball unit in a middle school (students' age: 11 to 12, girls and boys, experienced PE teacher). The data were collected through field notes, informal interviews with the teacher, and videotapes of the lessons. The presentation will emphasize the cases in which the students slightly modified the stated task with no reason regarding their activity in the managerial or the social systems (students were listening, they

were involved in the task, they did not try to avoid the demands of the task). In such tasks, there is an adequate level of "skill-activity match" (Tousignant & Siedentop, 1983), but the outcome of the situation is poor effectiveness. Students do not achieve what they are supposed to learn. Data analysis was conducted by comparing the demands of the task (teacher's explicitness recorded and interviews after the lessons) and observed student behavior (field notes and videotape).

Findings

Most of the time, students modify the stated task. Continual, inevitable changes in the content taught are observed when it is brought into play in the instructional system (case studies will be addressed in detail). This result is congruent with those stated in the ecological perspective but happens although no real dysfunction appears in the other two systems (managerial and student social). How and why do the students modify the stated task? They "stretch" the didactic contract (i.e. the set of negotiations regarding the content embedded in the task). In doing so, they modify the task, not because they are not engaged consistently in the stated task or behave as "competent bystanders" (Tousignant & Siedentop, 1983) but because they test their capabilities in the aim of achieving the goal of the task. These implicit negotiations are achieved by: (a) changing the initial conditions of the stated task, (b) slackening off what is called the "key variable" of the task (i.e. the variable that commands the structure of the instructional task), (c) orientating teacher supervision about points that are not related to the foreseen content, (d) planning how to use the routines they have prior to finding new motor skill.

All of these are "breaches in the didactic contract" (Brousseau, 1986, 1997, Amade-Escot, 1999). They lessen the students' level of mastery of the task. Modifications appear through subtle and tacit student behavior, which transforms the stated task in some slight details that the teacher does not even notice (Amade-Escot, 1999). The consequences of these subtle changes within the task are a transformation of the content to be learnt. This is one of the major findings of the didactic perspective, which maintains that there is a gap between the content supposed to be taught and the "content really taught".

The second major finding is that breaches in the didactic contract are not the result of poor accountability but belong to the teaching-learning process itself. Some of the breaches are pertinent some are critical. This is related to the fact that teaching and learning are situated, contingency-managed action. So, the right concept in the didactic perspective is not to search for

a "good" didactic contract but to bring some conditions into play so that the constructivist learning process can occur.

Scientific significance

1. Our intent was to point out the need for a new concept to analyze classroom life in certain cases when the ecology of the classroom is task-oriented and the accountability content-embedded. In a way, from a didactic point of view, the typology of "in-task and off-task students' engagement" and its sub-categories of "students engaged in a modified-task" or "competent bystanders" (Tousignant & Siedentop, 1983) must be foregrounded to explain the trade-off within the instructional system. The concept of didactic contract and its breaches will give some theoretical opportunities for deepening the analysis of classroom interactions.

2. Moreover this paper tends to point out some convergence between two research programs. Negotiations are at the core of the interpretation of classroom life in both perspectives: in terms of "accountability" in the ecological perspective, and in terms of "didactic contract" in the didactic perspective. We defend the idea that the two approaches are complementary: while the ecological perspective studies a broad range of social interactions, the didactic one focus on the interactions that are specific to the content taught. Each sheds light on classroom life in physical education from its own point of view. Insights from multiple perspectives can provide mutual information and give a glimpse of the prospects for dialog and for closer contact or even joint work, which, in our opinion, would be fruitful for future PE research.

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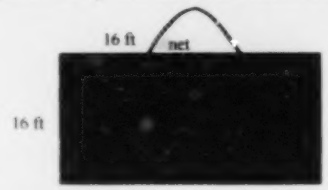
Case 1: Two players serve reception

(initiated by a rainbow toss from the opponent)



Instructional goal
"play the ball with two hits or more before throwing it over the net. Score **1** when achieved"

T Server with a rainbow toss
P1 Player one
P2 Player two
● Zone of serve

In this case the a priori analysis is

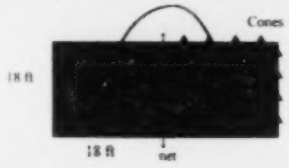
- **the didactical environment** set up a tactical problem. Players must distinguish their roles (**ball player** and **off ball player**) and this in **an uncertain context.**
- **the key variable** is the first throw that **should be between** the two players
- **The success clue** expected is that one of the players talks, the other moves ready to support and cooperate
- **Thus, the content embedded initially in the stated task** concerns the construction of **common information that allows anticipation** for both players in the aim to cooperate successfully, to recognize in action both roles and their tactic interrelations

Observation

- Most of students that succeed, throw the first ball (T) to the highest skilled player
- The teacher does not comment on the task modification
- Feedback is given to the lower skilled students (girls) *«get ready, arms up» ; «remind to say OK before hitting the ball»*
- Encouragement : *«go, go»*

Case 2: Three players serve reception

(initiated by a rainbow toss from the opponent)



Instructional goal : "The 3 players must hit the ball as many times as possible. After each hit, the player shall go and touch one of any cone. Score as many hits in a team without losing the ball. Find a strategy to success"

T Server with a rainbow toss
P1, P2, P3 Players
▲ : Cones

In this case the a priori analysis is

- **The didactical environment** set a problem of coordination between 2 actions. Player must hit the ball over the head, enough high **to : keep the ball in the court, have enough time to go and touch the cone, give time to his (her) partners in the aim of obtaining cooperation within the team**
- **The key variable** is the distance of the player to the cone, the 2 actions must be in a sequence. Discussion between peers to find a good strategy
- **Success clue**: the height of the ball after each hit
- **Content embedded initially in the stated task** : **construction in action of** the tactical concept:"*more the ball is high, more I give time to my partner*" **and** the necessary **"overhead control" of the ball** to success

Observation

- Some students stay near one cone, and deflect the ball to reach one partner (score: 1 or 2 hits and fail)
- Others do not move to the cone. They stay in a small area, making small distance passes and score 8 or 10
- Some try to apply the instructional goal, and fail. But they talk together and say *"high, high the ball"*

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